

## The Current State of Advanced Practice Provider Fellowships in Hospital Medicine: A Survey of Program Directors

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**BACKGROUND:** Postgraduate training for advanced practice providers (APPs) is a growing field in hospital medicine. As hospital programs continue to benefit from highly trained physician assistants (PAs) and nurse practitioners (NPs), fellowship programs have become more prevalent. However, little is known about the number of active programs or how they prepare trainees.

**OBJECTIVES:** To describe the existing APP fellowships in hospital medicine, with a focus on program characteristics, rationale, curricula, and learner assessment.

**METHODS:** An electronic survey was distributed by e-mail to hospital medicine program directors in May 2018. The survey consisted of 25 multiple choice and short answer questions. Descriptive statistics were calculated utilizing Stata 13 for data analysis.

**RESULTS:** Of the 11 fellowships identified, 10 (91%) of directors responded to the survey. Eighty percent of

programs accept both NPs and PAs and 80% are between 12 and 13 months long. All programs cite “training and retaining” as the main driver for their creation and 90% were founded in institutions with existing physician residencies. Ninety percent of program curricula are informed by Society of Hospital Medicine resources. Despite these similarities, there was wide variation in both curricular content and APP fellow assessment.

**CONCLUSION:** APP fellowships in hospital medicine are quickly growing as a means to train and retain nonphysician hospitalists. While most programs accept similar types of applicants and share a common rationale for program development, there is little standardization in terms of curriculum or assessment. Further research may be valuable to characterize the best practices to guide the future of these fellowships. *Journal of Hospital Medicine* 2019;14:401-406. Published online first April 8, 2019. © 2019 Society of Hospital Medicine

Postgraduate training for physician assistants (PAs) and nurse practitioners (NPs) is a rapidly evolving field. It has been estimated that the number of these advanced practice providers (APPs) almost doubled between 2000 and 2016 (from 15.3 to 28.2 per 100 physicians) and is expected to double again by 2030.<sup>1</sup> As APPs continue to become a progressively larger part of the healthcare workforce, medical organizations are seeking more comprehensive strategies to train and mentor them.<sup>2</sup> This has led to the development of formal postgraduate programs, often called APP fellowships.

Historically, postgraduate APP fellowships have functioned to help bridge the gap in clinical practice experience between physicians and APPs.<sup>3</sup> This gap is evident in hours of clinical training. Whereas NPs are generally expected to complete 500-1,500 hours of clinical practice before graduating,<sup>4</sup> and PAs are expected to complete 2,000 hours,<sup>5</sup> most physicians will complete over 15,000 hours of clinical training by the end

of residency.<sup>6</sup> As increasing patient complexity continues to challenge the healthcare workforce,<sup>7</sup> both the NP and the PA leadership have recommended increased training of graduates and outcome studies of formal postgraduate fellowships.<sup>8,9</sup> In 2007, there were over 60 of these programs in the United States,<sup>10</sup> most of them offering training in surgical specialties.

First described in 2010 by the Mayo Clinic,<sup>11</sup> APP fellowships in hospital medicine are also being developed. These programs are built to improve the training of nonphysician hospitalists, who often work independently<sup>12</sup> and manage medically complex patients.<sup>13</sup> However, little is known about the number or structure of these fellowships. The limited understanding of the current APP fellowship environment is partly due to the lack of an administrative body overseeing these programs.<sup>14</sup> The Accreditation Review Commission on Education for the Physician Assistant (ARC-PA) pioneered a model in 2007 for postgraduate PA programs, but it has been held in abeyance since 2014.<sup>15</sup> Both the American Nurses Credentialing Center and the National Nurse Practitioner Residency and Fellowship Training Consortium have fellowship accreditation review processes, but they are not specific to hospital medicine.<sup>16</sup> The Society of Hospital Medicine (SHM) has several resources for the training of APPs;<sup>17</sup> however, it neither reviews nor accredits fellowship programs. Without standards, guidelines, or active

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TABLE. Characteristics of APP Hospital Medicine Fellowships

Program		A	B	C	D	E	F	G	H	I	J
<b>Years active</b>		<b>1</b>	<b>2</b>	<b>2</b>	<b>3</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>5</b>	<b>9</b>	<b>&gt;10</b>
Program context	Hospital beds	403	338	452	400	681	350	455	900	765	213
	MD residency at institution?	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes
	Learn with residents?	Yes	Yes	Yes	Yes	No	No	No	No	Yes	Yes
Program features	Duration (months)	12	12	12	18	6	12	12	12	13	12
	Use SHM core competencies?	No	Yes	Yes	Yes	No	No	No	Yes	Yes	Yes
	What organization accredited the fellowship?	None	None	None	None	None	None	None	None	None	ARC-PA
	Starting salary (in dollars)	>70K	>70K	55-60K	55-60K	>70K	>70K	60-65K	65-70K	60-65K	55-60K
Fellow characteristics	Eligible APPs	NP/PA	NP/PA	NP/PA	PA	NP/PA	NP/PA	NP/PA	NP/PA	NP/PA	PA
	Fellows per class	>5	2	2	2	>5	>5	4	2	>5	3
	Total alumni in the past five years	3	3	3	2	20	6	12	>20	>20	14
	Female fellows in the past five years (%)	100	80	100	100	85	67	70	78	79	65
Postfellowship employment	Is it implied that successful graduates will be retained?	No	Yes	No	No	Yes	Yes	No	Yes	No	No
	Salary/bonus contingent on retention?	Yes	Yes	No	Yes	No	Yes	No	Yes	No	No
	Alumni in last five years hired for full-time position (%)	100	75	100	100	96	100	75	71	86	90
Main driver(s) for fellowship creation	Train and retain applicants	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Build interprofessional team	✓	✓						✓	✓	✓
	Manage patient volume	✓	✓						✓		
	Reduce overhead		✓				✓		✓		

Abbreviations: APP, advanced practice provider; ARC-PA, Accreditation Review Commission on Education for the Physician Assistant; IM, internal medicine; K, thousand; NP, nurse practitioner; PA, physician assistant; SHM, Society of Hospital Medicine.

accrediting bodies, APP fellowships in hospital medicine are poorly understood and are of unknown efficacy. The purpose of this study was to identify and describe the active APP fellowships in hospital medicine.

## METHODS

This was a cross-sectional study of all APP adult and pediatric fellowships in hospital medicine, in the United States, that were identifiable through May 2018. Multiple methods were used to identify all active fellowships. First, all training programs offering a *Hospital Medicine Fellowship* in the ARC-PA and Association of Postgraduate PA Programs databases were noted. Second, questionnaires were given out at the NP/PA forum at the national SHM conference in 2018 to gather information on existing APP fellowships. Third, similar online requests to identify known programs were posted to the SHM web forum Hospital Medicine Exchange (HMX). Fourth, Internet searches were used to discover additional programs. Once those fellowships were identified, surveys were sent to their program directors (PDs). These surveys not only asked the PDs about their fellowship but also asked them to identify additional APP

fellowships beyond those that we had captured. Once additional programs were identified, a second round of surveys was sent to their PDs. This was performed in an iterative fashion until no additional fellowships were discovered.

The survey tool was developed and validated internally in the AAMC Survey Development style<sup>18</sup> and was influenced by prior validated surveys of postgraduate medical fellowships.<sup>10,19-21</sup> Each question was developed by a team that had expertise in survey design (Wright and Tackett), and two survey design team members were themselves PDs of APP fellowships in hospital medicine (Kisuule and Franco). The survey was revised iteratively by the team on the basis of meetings and pilot testing with PDs of other programs. All qualitative or descriptive questions had a free response option available to allow PDs to answer the survey accurately and exhaustively. The final version of the survey was approved by consensus of all authors. It consisted of 25 multiple choice questions which were created to gather information about the following key areas of APP hospital medicine fellowships: fellowship and learner characteristics, program rationales, curricula, and methods of fellow assessment.

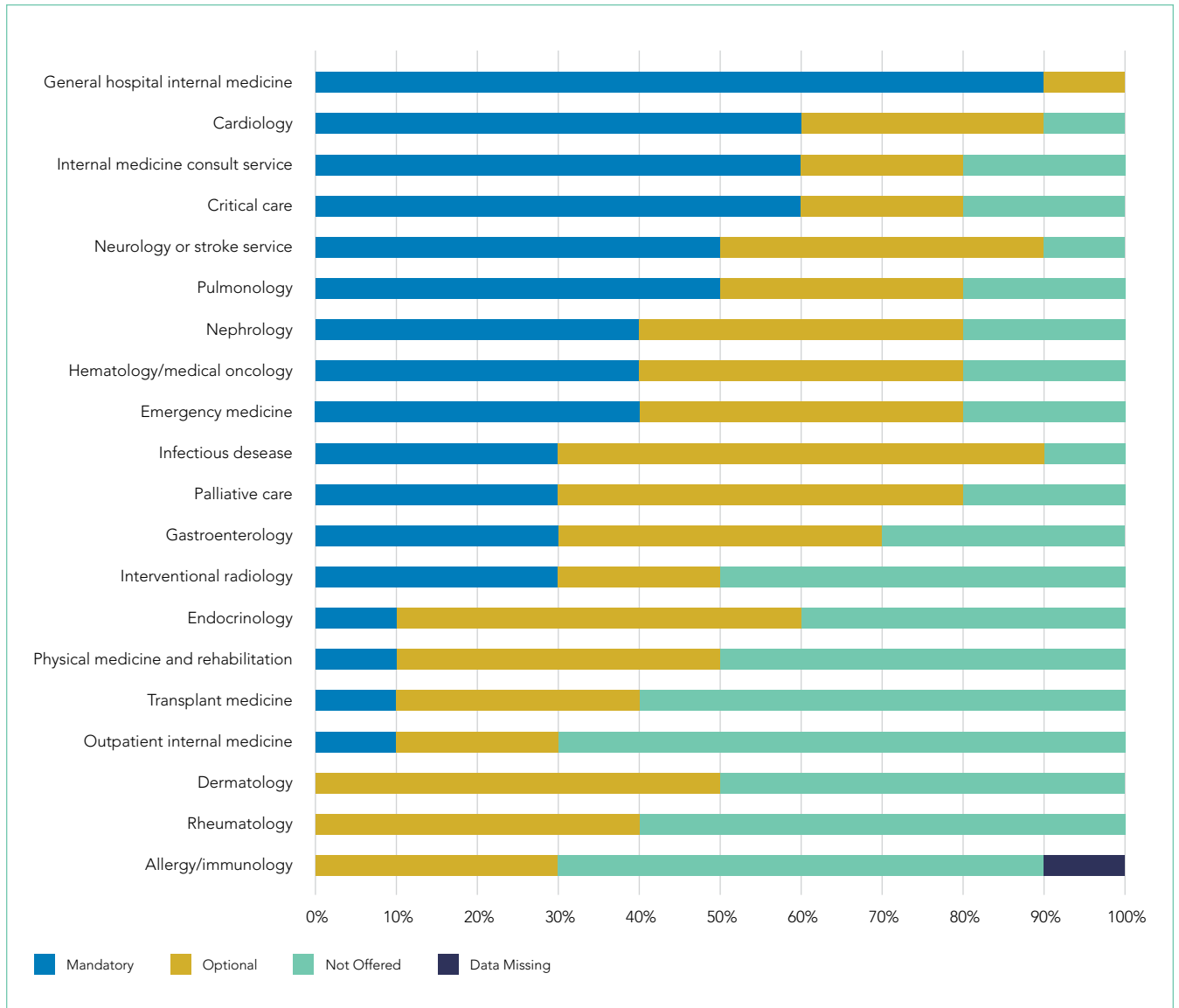


FIG 1. Educational Experiences for Advanced Practice Provider Hospital Fellowships: Clinical Rotations

A web-based survey format (Qualtrics) was used to distribute the questionnaire e-mail to the PDs. Follow up e-mail reminders were sent to all nonresponders to encourage full participation. Survey completion was voluntary; no financial incentives or gifts were offered. IRB approval was obtained at Johns Hopkins Bayview (IRB number 00181629). Descriptive statistics (proportions, means, and ranges as appropriate) were calculated for all variables. Stata 13 (StataCorp. 2013. Stata Statistical Software: Release 13. College Station, Texas. StataCorp LP) was used for data analysis.

## RESULTS

In total, 11 fellowships were identified using our multimethod approach. We found four (36%) programs by utilizing existing online databases, two (18%) through the SHM questionnaire and HMX forum, three (27%) through internet searches, and the remaining two (18%) were referred to us by the other PDs

who were surveyed. Of the programs surveyed, 10 were adult programs and one was a pediatric program. Surveys were sent to the PDs of the 11 fellowships, and all but one of them (10/11, 91%) responded. Respondent programs were given alphabetical designations A through J (Table).

### Fellowship and Individual Characteristics

Most programs have been in existence for five years or fewer. Eighty percent of the programs are about one year in duration; two outlier programs have fellowship lengths of six months and 18 months. The main hospital where training occurs has a mean of 496 beds (range 213 to 900). Ninety percent of the hospitals also have physician residency training programs. Sixty percent of programs enroll two to four fellows per year while 40% enroll five or more. The salary range paid by the programs is \$55,000 to >\$70,000, and half the programs pay more than \$65,000.

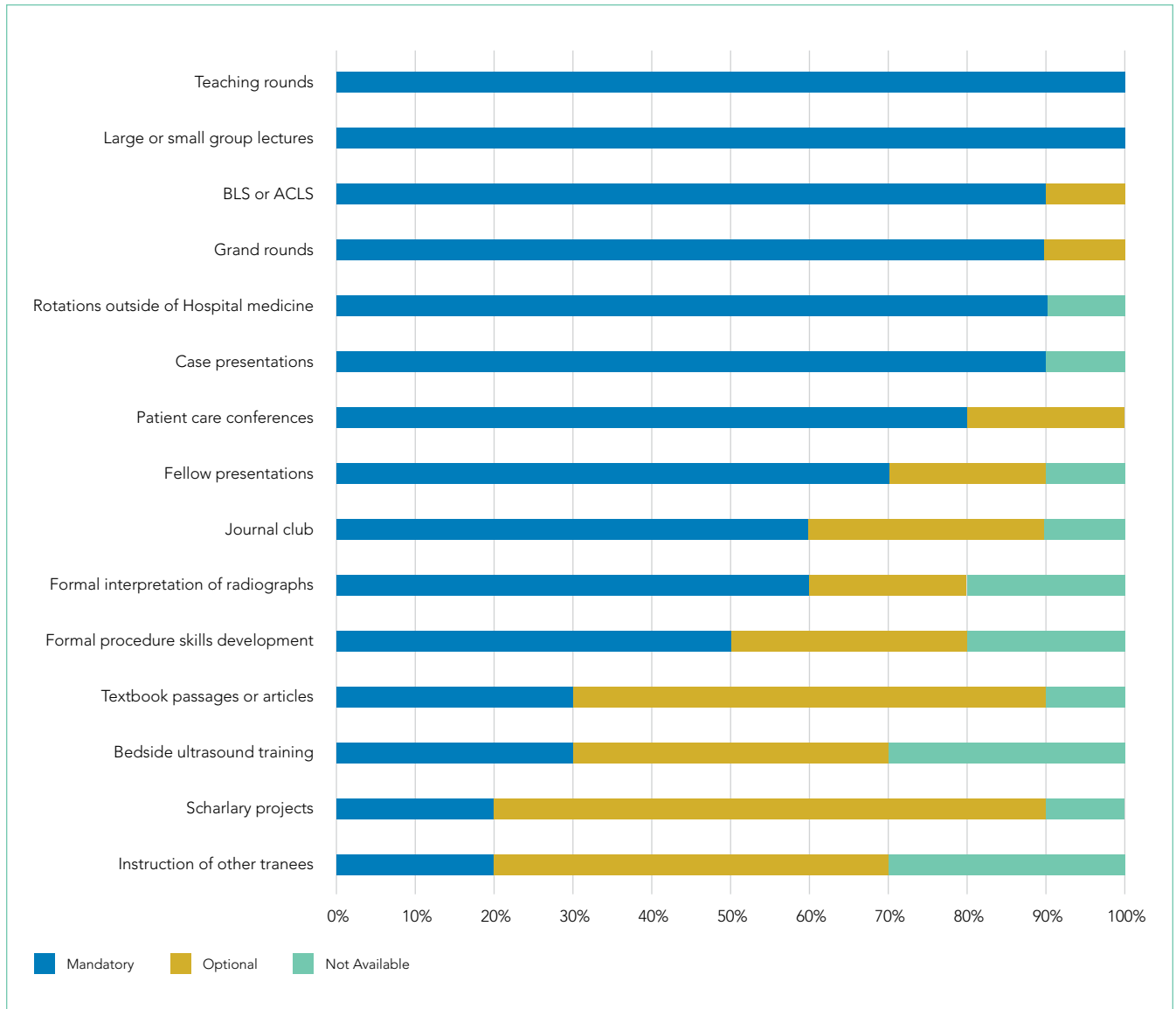


FIG 2. Educational Experiences for Advanced Practice Provider Hospital Fellowships: Learning Formats

The majority of fellows accepted into APP fellowships in hospital medicine are women. Eighty percent of fellows are 26-30 years old, and 90% of fellows have been out of NP or PA school for one year or less. Both NP and PA applicants are accepted in 80% of fellowships.

**Program Rationales**

All programs reported that training and retaining applicants is the main driver for developing their fellowship, and 50% of them offer financial incentives for retention upon successful completion of the program. Forty percent of PDs stated that there is an implicit or explicit understanding that successful completion of the fellowship would result in further employment. Over the last five years, 89% (range: 71%-100%) of graduates were asked to remain for a full-time position after program completion.

In addition to training and retention, building an interprofessional team (50%), managing patient volume (30%), and

reducing overhead (20%) were also reported as rationales for program development. The majority of programs (80%) have fellows bill for clinical services, and five of those eight programs do so after their fellows become more clinically competent.

**Curricula**

Of the nine adult programs, 67% teach explicitly to SHM core competencies and 33% send their fellows to the SHM NP/PA Boot Camp. Thirty percent of fellowships partner formally with either a physician residency or a local PA program to develop educational content. Six of the nine programs with active physician residencies, including the pediatric fellowship, offer shared educational experiences for the residents and APPs.

There are notable differences in clinical rotations between the programs (Figure 1). No single rotation is universally required, although general hospital internal medicine is required in all adult fellowships. The majority (80%) of programs offer at least

one elective. Six programs reported mandatory rotations outside the department of medicine, most commonly neurology or the stroke service (four programs). Only one program reported only general medicine rotations, with no subspecialty electives.

There are also differences between programs with respect to educational experiences and learning formats (Figure 2). Each fellowship takes a unique approach to clinical instruction; teaching rounds and lecture attendance are the only experiences that are mandatory across the board. Grand rounds are available, but not required, in all programs. Ninety percent of programs offer or require fellow presentations, journal clubs, reading assignments, or scholarly projects. Fellow presentations (70%) and journal club attendance (60%) are required in more than half the programs; however, reading assignments (30%) and scholarly projects (20%) are rarely required.

### Methods of Fellow Assessment

Each program surveyed has a unique method of fellow assessment. Ninety percent of the programs use more than one method to assess their fellows. Faculty reviews are most commonly used and are conducted in all rotations in 80% of fellowships. Both self-assessment exercises and written examinations are used in some rotations by the majority of programs. Capstone projects are required infrequently (30%).

## DISCUSSION

We found several commonalities between the fellowships surveyed. Many of the program characteristics, such as years in operation, salary, duration, and lack of accreditation, are quite similar. Most fellowships also have a similar rationale for building their programs and use resources from the SHM to inform their curricula. Fellows, on average, share several demographic characteristics, such as age, gender, and time out of schooling. Conversely, we found wide variability in clinical rotations, the general teaching structure, and methods of fellow evaluation.

There have been several publications detailing successful individual APP fellowships in medical subspecialties,<sup>22</sup> psychiatry,<sup>23</sup> and surgical specialties,<sup>24</sup> all of which describe the benefits to the institution. One study found that physician hospitalists have a poor understanding of the training PAs undergo and would favor a standardized curriculum for PA hospitalists.<sup>25</sup> Another study compared all PA postgraduate training programs in emergency medicine;<sup>19</sup> it also described a small number of relatively young programs with variable curricula and a need for standardization. Yet another paper<sup>10</sup> surveyed postgraduate PA programs across all specialties; however, that study only captured two hospital medicine programs, and it was not focused on several key areas studied in this paper—such as the program rationale, curricular elements, and assessment.

It is noteworthy that every program surveyed was created with training and retention in mind, rather than other factors like decreasing overhead or managing patient volume. Training one's own APPs so that they can learn on the job, come to understand expectations within a group, and witness the culture is extremely valuable. From a patient safety standpoint, it has been documented that physician hospitalists straight

out of residency have a higher patient mortality compared with more experienced providers.<sup>26</sup> Given the findings that on a national level, the majority of hospitalist NPs and PAs practice autonomously or somewhat autonomously,<sup>12</sup> it is reasonable to assume that similar trends of more experienced providers delivering safer care would be expected for APPs, but this remains speculative. From a retention standpoint, it has been well described that high APP turnover is often due to decreased feelings of competence and confidence during their transition from trainees to medical providers.<sup>27</sup> APPs who have completed fellowships feel more confident and able to succeed in their field.<sup>28</sup> To this point, in one survey of hospitalist PAs, almost all reported that they would have been interested in completing a fellowship, even if it meant a lower initial salary.<sup>29</sup>

Despite having the same general goals and using similar national resources, our study reveals that APP fellows are trained and assessed very differently between programs. This might represent an area of future growth in the field of hospitalist APP education. For physician learning, competency-based medical education (CBME) has emerged as a learner centric, outcomes-based model of teaching and assessment that emphasizes mastery of skills and progression through milestones.<sup>30</sup> Both the ACGME<sup>31</sup> and the SHM<sup>32</sup> have described core competencies that provide a framework within CBME for determining readiness for independent practice. While we were not surprised to find that each fellowship has its own unique method of determining readiness for practice, these findings suggest that graduates from different programs likely have very different skill sets and aptitude levels. In the future, an active accrediting body could offer guidance in defining hospitalist APP core competencies and help standardize education.

Several limitations to this study should be considered. While we used multiple strategies to locate as many fellowships as possible, it is unlikely that we successfully captured all existing programs, and new programs are being developed annually. We also relied on self-reported data from PDs. While we would expect PDs to provide accurate data, we could not externally validate their answers. Additionally, although our survey tool was reviewed extensively and validated internally, it was developed de novo for this study.

## CONCLUSION

APP fellowships in hospital medicine have experienced marked growth since the first program was described in 2010. The majority of programs are 12 months long, operate in existing teaching centers, and are intended to further enhance the training and retention of newly graduated PAs and NPs. Despite their similarities, fellowships have striking variability in their methods of teaching and assessing their learners. Best practices have yet to be identified, and further study is required to determine how to standardize curricula across the board.

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